

Wyoming Volunteer Firefighter, EMT, and Search and Rescue Pension Fund

Actuarial Valuation Report
for the Year Beginning January 1, 2020





May 29, 2020

Board of Trustees

Wyoming Volunteer Firefighter, EMT, and Search and Rescue Pension Plan

6101 Yellowstone Road

Suite 500

Cheyenne, WY 82002

Dear Board of Trustees:

Subject: Actuarial Valuation as of January 1, 2020

We are pleased to present the report of the actuarial valuation of the Wyoming Volunteer Firefighter, EMT, and Search and Rescue Pension Plan ("the Fund") for the plan year commencing January 1, 2020. This report describes the current actuarial condition of the Fund and determines the calculated employer contribution amount (the actuarially determined contribution amount). Valuations are prepared annually, as of January 1, the first day of the Fund's plan year.

This report was prepared at the request of the Board and is intended for use by the Retirement System and those designated or approved by the Board. This report may be provided to parties other than the System only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

Financing Objectives and Funding Policy

The employee contribution amounts are specified in statute and are scheduled to increase July 1, 2020. The state treasurer shall deposit into the Fund 80% of the gross tax levied upon fire insurance premiums paid to insurance companies for fire insurance in the state. The percentage deposited is scheduled to increase to 100% as of July 1, 2020. The purpose of this actuarial valuation is to determine whether or not these contribution amounts are sufficient to meet the obligations of the Fund. This report should not be relied on for any purpose other than the purposes described herein. Determinations of financial results, associated with the benefits described in this report, for purposes other than those identified above may be significantly different.

This valuation assumed the continuing ability of the plan sponsor to make the contributions necessary to fund this plan. A determination regarding whether or not the plan sponsor is actually able to do so is outside our scope of expertise and was not performed.

Progress toward realization of financing objectives

The funded ratio (the ratio of the actuarial value of assets to the actuarial accrued liability) is a standard measure of a plan's funded status. The funded ratio, based upon the assumption of no future cost-of-living adjustments as of January 1, 2020 is 72.47%. This compares to a funded ratio of 72.85% for the prior year. On a market value of assets basis, the funded ratio is 75.41% as of January 1, 2020, compared to a funded ratio of 67.91% for the prior year. The funded status alone is not appropriate for assessing the need for future contributions. The funded status is also not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations.

Pursuant to Enrolled Act No. 43, the premium tax allocated to fund this plan will increase from 80% to up to 100% starting July 1, 2020. Additionally, Employee contributions for volunteer firefighters and EMT members increases from \$15.00 to \$18.75 per month effective July 1, 2020 and employee contributions search and rescue members increases from \$30.00 to \$37.50 per month effective July 1, 2020.

Benefit Provisions

This is a newly established fund as of July 1, 2015, created under House Bill 72 of the 2015 General Session, which replaces the Volunteer Firemen's Pension Fund and the Volunteer Firefighter Emergency Medical Technician Pension Fund. The benefit provisions reflected in this valuation are those, which were in effect on January 1, 2020. W.S. 9-3-454 prohibits benefit changes, including cost-of-living increases, unless the funded ratio stays above 100% plus a margin for adverse experience throughout the life of the benefit change. Therefore, this valuation does not include any liability for future cost-of-living increases. There were no benefit changes since the prior valuation.

The benefit provisions are summarized in Appendix B of the report.

Assumptions and Methods

Actuarial assumptions and methods are set by the Board, based upon recommendations made by the plan's actuary. The current assumptions used in the actuarial valuation were adopted by the Board effective August 23, 2017 and were first utilized with the January 1, 2018 valuation report. For a detailed description of the experience related to these assumptions, as well as the rationale for any changes, please see our latest Wyoming Retirement System Actuarial Experience Study Report. Our experience study report was dated January 10, 2018 and it covered the five-year investigation period ending December 31, 2016. All actuarial assumptions used in this report are reasonable for the purposes of this valuation.

The results of the actuarial valuation are dependent upon the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution amounts and funding periods. The actuarial calculations presented in the report are intended to provide information for rational decision making.



Assumptions and Methods (continued)

The employer contribution requirement in Table 1 of this report is determined using the actuarial assumptions and methods disclosed in Appendix A of this report. This report does not include a detailed assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment. We encourage a review and assessment of investment and other significant risks that may have a material effect on the plan's financial condition.

All assumptions and methods are described in Appendix A of the report.

Data

Member data for retired, active and inactive members was supplied as of January 1, 2020 by the Fund's staff. We did not audit this data, but we did apply a number of tests to the data, and we concluded that it was reasonable and consistent with the prior year's data.

Asset and financial information as of January 1, 2020 was prepared by Wyoming Retirement System and is the responsibility of management. Eide Bailly, LLP provided us the asset and financial information and will opine on Wyoming Retirement System's statements.

We are not responsible for the accuracy or completeness of the information provided by the System's staff.

Plan experience

As part of each valuation, we examine the Fund's experience relative to the assumptions. As experience in a given year deviates from the assumptions, a gain occurs if the liabilities grow slower than the assumption set anticipates and a loss occurs if the liabilities grow faster. This past fiscal year, the Fund had a total experience loss of approximately \$1.63 million, composed of a \$0.85 million investment loss, a \$0.42 million contribution loss, and a \$0.36 million liability loss. The aggregate results of these analyses are disclosed in Tables 4 and 5 under Section III of the report.



Actuarial Certification

All of the tables contained in this actuarial valuation report were prepared by Gabriel, Roeder, Smith & Company. Historical information for years prior to 2010 was prepared by the prior actuarial firm and was not subjected to our actuarial review.

We certify that the information presented herein is accurate and fairly portrays the actuarial position of the Fund as of January 1, 2020.

All of our work conforms with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of state law and, where applicable, the Internal Revenue Code and ERISA.

The undersigned are independent actuaries and consultants.

Mark Randall and Thomas Lyle are Enrolled Actuaries and Mark Randall, Paul Wood, and Thomas Lyle are members of the American Academy of Actuaries, and all three meet all the Qualification Standards of the American Academy of Actuaries.

Finally, all of the undersigned are experienced in performing valuations for large public retirement systems.

Respectfully submitted,

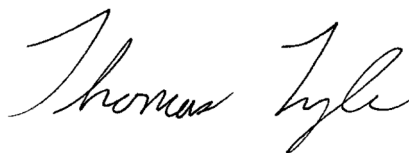
Gabriel, Roeder, Smith & Company



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SECTION I

EXECUTIVE SUMMARY

Executive Summary

Item	January 1, 2020	January 1, 2019
	No COLA	No COLA
1. Contributions:		
a. Total normal cost	\$1,501,573	\$1,432,649
b. Employee contributions*	(505,845)	(422,460)
c. Other expected contributions	-	-
d. Net employer normal cost	\$995,728	\$1,010,189
e. Amortization payment	2,585,210	2,436,283
f. Administrative expenses	88,200	96,900
g. Required contribution	\$3,669,138	\$3,543,372
h. Estimated premium tax allocation*	(3,826,000)	(3,207,000)
i. Shortfall/(surplus)	(\$156,862)	\$336,372
2. Funding Elements:		
a. Market value of assets (MVA)	\$86,913,518	\$76,255,714
b. Actuarial value of assets (AVA)	\$83,527,771	\$81,800,847
c. Actuarial accrued liability (AAL)	\$115,260,425	\$112,287,528
d. Unfunded/(overfunded) actuarial accrued liability	\$31,732,654	\$30,486,681
3. Contributions and Ratios:		
a. Annual required contribution	\$3,669,138	\$3,543,372
b. Actual contributions	N/A	3,118,824
i. Employer	N/A	-
ii. Other	N/A	3,118,824
c. Percentage contributed	N/A	88.02%
d. Funded ratio on an actuarial basis (AVA/AAL)	72.47%	72.85%
e. Funded ratio on a market basis (MVA/AAL)	75.41%	67.91%

* Employee contributions include the increase in member contributions effective July 1, 2020. The premium tax is equal to 80% for the first six months and 100% as of July 1, 2020. The premium tax for 2020 has been estimated based on the premium tax paid for 2019 (\$3,118,824).



SECTION II

DISCUSSION

Contribution Requirements

- Exhibits throughout this report are based primarily, unless stated otherwise, on the assumption of no future cost-of-living adjustments (COLA)
- W.S. 9-3-454 prohibits benefit changes, including cost-of-living increases, unless the funded ratio stays above 100% plus a margin for adverse experience throughout the life of the benefit change. The actuarial value funded ratio is 72.47% and the market value funded ratio is 75.41%.
- The estimated State premium tax allocation is \$3.80 million this year, as estimated based on the actual premium tax paid for 2019 of \$3.12 million including the expected increase in allocation beginning July 1, 2020.
- The amortization payment is based upon the following assumptions:
 - The funding period is based on a 30-year closed period for the initial base as of January 1, 2018 and 20-year closed period layers for future gains and losses.
 - Amortization payment amounts are calculated in such a way that they will remain level as a dollar amount.
 - Future growth in the number of active members is not reflected in the annual valuation.
- The calculated funding period assuming an annual contribution of \$3.80 million is 17 years, assuming the contribution increasing with inflation at 2.25% per year.
- Benefit provisions effective July 1, 2015, as authorized by new legislation in HB 72 of the 2015 General Assembly, are summarized in Appendix B.
- The actuarial assumptions have not been updated since the prior valuation. For a detailed description of the experience related to these assumptions, as well as the rationale for any changes, please see our latest Wyoming Retirement System Actuarial Experience Study Report.
- At the time this report is being issued, we are living through the global COVID-19 pandemic. As a result, the financial markets are significantly down and experiencing extreme volatility. A discussion of possible impacts of the pandemic will be provided outside of this report.

Calculation of Contribution Amounts

The funds available to pay benefits come from two sources, contributions and investment income on those contributions (the majority of the funds available to pay benefits typically come from investment income). The Fund receives contributions from two primary sources, state contributions equal to 80% (100% as of July 1, 2020) of gross fire insurance premium taxes and member contributions of \$15.00 (\$18.75 effective July 1, 2020) per month per Volunteer Fire and EMT member and \$30.00 (\$37.50 effective July 1, 2020) per month per search and rescue member. In addition, the prior EMT “set-aside” funds were transferred to this plan. As shown in Table 1 under Section III of the report, the calculated employer contribution amount has three components:

- The normal cost (NC)
- The amortization payment
- The administrative expenses

The NC is the theoretical amount, which would be required to pay the members’ benefits if this amount had been contributed from each member’s entry date and if the fund’s experience exactly followed the actuarial assumptions. The NC is shown in Table 1 under Section III of the report.

The actuarial accrued liability (AAL) is the difference between (i) the actuarial present value of all future benefits for all current participants of the fund, including active, inactive and retired members, and (ii) the actuarial present value of future normal costs. Thus the AAL represents the liability associated with past years. The unfunded actuarial accrued liability (UAAL) is the difference between the AAL and the actuarial value of assets (AVA). It is the shortfall/excess between the liability associated with prior years (the AAL) and the assets actually accumulated (the AVA). This shortfall/excess can arise from several sources, including actuarial gains and losses which are caused by differences between actual experience and the plan’s assumptions, changes to the plan’s actuarial assumptions, and amendments to the benefit provisions.

The amortization payment is the amount required to fund this difference. It is the amount, expressed as a level dollar amount, necessary to amortize the UAAL. Amortization bases are established each year and amortized based on the Board’s policy. The Board’s policy consists of amortizing the unfunded liability as of January 1, 2018, over a closed 30 year period with each subsequent amortization base created as a result of year to year experience changes over individual 20 year closed periods. The Executive Summary shows the UAAL%, called Amortization Payment, compared to that of last year.

Administrative expenses are the average of the actual expenses for the prior two years, with each year projected at 2.50% to the valuation date.

The calculated contribution amount is used in determining the contributions necessary to meet the Actuarially Determined Contribution for the twelve-month period beginning January 1, 2020.



Financial Data and Experience

As of January 1, 2020, the Fund has a total market value of \$87 million. Financial information was received from Eide Bailly, LLP.

Table 7 under Section III of the report shows a reconciliation of the market values between the beginning and end of 2019.

During 2019, the total investment return on the market value of assets (MVA), as reported by Meketa Investment Group, Inc., was 18.72%, as shown in Table 10 under Section III of the report.

In determining the contribution rates and funded status of the Fund, an actuarial value of assets (AVA) is used rather than the market value of assets. The actuarial value of assets is based on the market value of assets with a five-year phase-in of actual investment return in excess of (or less than) expected investment income. Expected investment income is determined using the assumed investment return rate and the market value of assets (adjusted for receipts and disbursements during the year). The returns are computed net of investment expenses. An adjustment is made if the actuarial value is not within 20% of the Market Value. For any year following a year in which the 20% of market value adjustment was applied, the actuarial value is determined as if the adjustment was not applied in the previous year.

This is a new fund established as of July 1, 2015 where the initial market value of assets includes the total amounts from the two prior funds, which have been rolled into this fund. Since the new plan has greater contributions and benefit payments than the combined amounts under the prior discontinued plans, the actuarial value of assets has been reinitialized to the market value of assets as of January 1, 2015.

The development of the AVA is shown in Table 9 under Section III of the report. The AVA is \$84 million, compared to \$82 million last year. The AVA is 96.10% of the MVA as of December 31, 2019, compared to 107.27% last year.

In addition to the market return, Table 10 also shows the return on the actuarial value of assets for the Fund. For 2019, this return was 5.94%, which is less than the assumed 7.00% investment return for the prior year.



Member Data

Member data as of January 1, 2020 was supplied electronically by the Fund's staff. While we did not audit this data, we did perform various tests to ensure that it was internally consistent, consistent with the prior year's data, and was reasonable overall.

Table 15 under Section III of the report shows the number of members by category (active, inactive, retired, etc.) along with member statistics. Tables 16 through 24 show summaries of certain historical data and include membership statistics.

Of the 2,417 active participants, 240 are eligible or will become eligible for retirement in 2020. Furthermore, there are 81 new search and rescue members.



Benefit Provisions

Appendix B of the report includes a more detailed summary of the benefit provisions for the Fund. These are the benefit provisions in effect January 1, 2016, per HB 72 as passed by the Wyoming General Assembly in the 2015 general session. A brief summary is as follows:

- *Normal Retirement Eligibility*
 - Age 60 with 5 years of service
- *Normal Retirement Benefit*
 - \$16 per month for each of the first 10 years of service and \$19 per month for each year of service over 10
- *Spouse Benefits*
 - 66% of the member's benefit payable prior to the member's death
- *Employee Contributions* are required
 - \$15 per month (\$30 per month for search and rescue employees)
 - Effective July 1, 2020, employee contributions increase to \$18.75 (\$37.50 per month for search and rescue employees)
- *Post-retirement Cost-of-Living Adjustments (COLAs)*
 - W.S. 9-3-454 prohibits benefit changes, including cost-of-living increases, unless the funded ratio stays above 100% plus a margin for adverse experience throughout the life of the benefit change.

Actuarial Methods and Assumptions

Appendix A of the report includes a summary of the actuarial assumptions and methods used in this valuation. A few highlights are listed as follows:

- Costs are determined using the Entry Age Normal actuarial cost method, calculated as a level dollar amount.
- The unfunded actuarial accrued liability is amortized over an effective 27 year closed period as a level dollar amount. Future valuations will include additional amortization layers on a closed 20 year bases.
- The assumed annual investment return rate is 7.00%, with assumed inflation of 2.25%.
- Inactive vested participants are assumed to retire at normal retirement eligibility or the valuation date if already eligible to retire.
- No benefit data is available for members entitled to deferred benefits. The present value of benefits expected to be paid to vested inactive non-retired members is approximated using the data provided.

The average future lifetime for current pensioners is 15.9 years.

The actuarial assumptions and methods were reviewed in detail as part of the 2017 Experience Study covering the five year period ending December 31, 2016. Please see Appendix A for a summary of the assumptions.



GASB and Funding Progress

Governmental Accounting Standards Board Statement Number 67 (GASB 67) contains certain accounting requirements for the Fund. Schedules, notes and required supplementary information are provided under separate cover.



SECTION III

SUPPORTING EXHIBITS

Table 1A

Calculation of Employer Contribution Rate

(Assumes No Future Cost-Of-Living Increases)

Item	January 1, 2020	January 1, 2019
1. Employer normal cost	\$995,728	\$1,010,189
2. Actuarial accrued liability for active members		
a. Present value of future benefits for active members	\$49,409,882	\$48,784,237
b. Less: present value of future employer normal costs	(5,634,384)	(5,355,321)
c. Less: present value of future employee contributions	(2,608,522)	(2,542,267)
d. Actuarial accrued liability	\$41,166,976	\$40,886,649
3. Total actuarial accrued liability for:		
a. Retirees and beneficiaries	\$68,345,642	\$65,891,563
b. Disabled members	-	-
c. Inactive members	5,747,807	5,509,316
d. Active members (Item 2d)	41,166,976	40,886,649
e. Total	\$115,260,425	\$112,287,528
4. Actuarial value of assets (Table 9)	\$83,527,771	\$81,800,847
5. Unfunded actuarial accrued liability (UAAL) (Item 3e - Item 4)	\$31,732,654	\$30,486,681
6. Effective UAAL amortization period	27 years	28 years
7. Assumed payroll growth rate	0.00%	0.00%
8. Employer contribution requirement		
a. UAAL amortization payment	\$2,585,210	\$2,436,283
b. Employer normal cost	995,728	1,010,189
c. Administrative expenses	88,200	96,900
d. Contribution requirement (a + b + c)	\$3,669,138	\$3,543,372

Table 1B

Calculation of UAAL Amortization Payment

(Assumes No Future Cost-Of-Living Increases)

UAAL as of January 1, 2020		\$31,732,654		
Total Prior Remaining Amortization Bases as of January 1, 2020		\$30,100,638		
2020 Amortization Base as of January 1, 2020		\$1,632,016		
2020 Payment (20 years, level percent of pay amortization)		\$148,927		
		As of January 1, 2020		
Base Year	Initial Base	Remaining Base	Years Remaining	Amortization Payment
2020	\$ 1,632,016	\$ 1,632,016	20	\$ 148,927
2019	2,859,262	2,789,517	19	260,917
2018	27,923,023	27,311,121	28	2,175,366
Total		\$ 31,732,654		\$ 2,585,210

Table 2
Cost Breakdown
(Assumes No Future Cost-Of-Living Increases)

Item	Present Value of Future Normal Costs (1)	Actuarial Accrued Liabilities (2)	Total Present Value of Benefits (3) = (1) + (2)
Age and service allowances based on total service and disability benefits likely to be rendered by present active members	\$6,584,281	\$39,100,268	\$45,684,549
Death-in-service benefits likely to be paid on behalf of present active members (employer financed portion)	205,379	679,551	884,930
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active members	1,453,246	1,387,157	2,840,403
Benefits likely to be paid to vested inactive members	0	5,169,449	5,169,449
Benefits to be paid to members due refunds	0	578,358	578,358
Benefits to be paid to current retirees, disabled members, beneficiaries, and future beneficiaries of current retirees	0	68,345,642	68,345,642
Total	\$8,242,906	\$115,260,425	\$123,503,331
Actuarial value of assets	-	\$83,527,771	\$83,527,771
Liabilities to be covered by future contributions	\$8,242,906	\$31,732,654	\$39,975,560

Table 3
History of Total Normal Cost
(Assumes No Future Cost-Of-Living Increases)

<u>Fiscal Year Ending December 31</u>	<u>Total Normal Cost Per</u>
(1)	Active
(2)	
2015	\$540
2016	\$535
2017	\$615
2018	\$610
2019	\$621

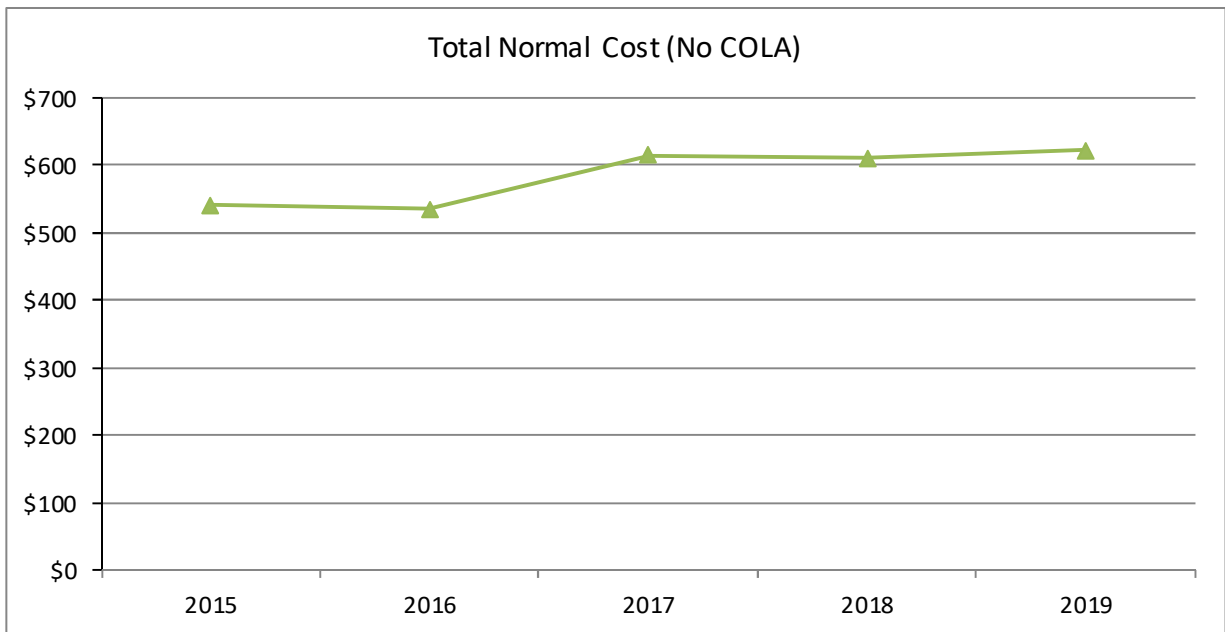


Table 4
Calculation of Total Actuarial Gain/(Loss)

Item	January 1, 2020
1. Derivation of experience gain/(loss)	
a. Unfunded actuarial accrued liability (UAAL) - previous valuation	\$30,486,681
b. Normal cost (NC) for fiscal year ending December 31, 2019	1,432,649
c. Expected administrative expenses for fiscal year ending December 31, 2019	96,900
d. Actuarially determined contribution for fiscal year ending December 31, 2019	3,965,832
e. Interest accrual:	
(i) For whole year on (a)	2,134,068
(ii) For half year on (b) + (c) - (d)	(83,828)
(iii) Total interest: (e)(i) + (e)(ii)	2,050,240
f. Change in UAAL due to programming enhancement	-
g. Change in UAAL due to assumption change	-
h. Expected UAAL current year: (a) + (b) + (c) - (d) + (e)(iii) + (f) + (g)	30,100,638
i. Actual UAAL current year	31,732,654
j. Experience gain/(loss): (h) - (i)	(1,632,016)
k. Experience gain/(loss) as a % of actuarial accrued liability	-1.42%
2. Approximate portion of gain/(loss) due to investments (at actuarial value)	(\$850,809)
3. Approximate portion of gain/(loss) due to contributions and administrative expenses higher or lower than expected*	(\$419,720)
4. Approximate portion of gain/(loss) due to liabilities: (1)(j) - (2) - (3)	(\$361,487)
a. Age & service retirements	289,013
b. Death-in-service	(11,733)
c. Withdrawal from employment	(443,017)
d. Rehires and new hires	(142,749)
e. Death after retirement	(14,114)
f. Service purchases	(5,596)
g. Other	(33,291)
h. Other as a % of actuarial accrued liability	-0.03%

**Includes \$5,596 in additional employee contributions for service purchases. These additional contributions offset the liability loss due to service purchases.*

Table 5
Change in Calculated Contribution Amount Since the Prior Valuation

Item	January 1, 2020
1. Calculated contribution amount as of January 1, 2019	\$3,543,372
2. Change in contribution amount during year	
a. Change in employer normal cost	(14,461)
b. Assumption changes	-
c. Actuarial (gain) loss from investments on actuarial value of assets	77,639
d. Actuarial (gain) loss from liability sources and administrative expenses	24,287
e. Difference between contributions made and required contributions	38,301
f. Other changes	-
g. Total change	\$125,766
3. Calculated contribution amount as of January 1, 2020	\$3,669,138

Table 6
Statement of Plan Net Assets

Assets at Market Value		
Item	FYE 2019	FYE 2018
1. Cash and cash equivalents (operating cash)	\$3,375,827	\$6,171,294
2. Receivables		
a. Insurance premium tax	\$1,100,000	\$1,100,000
b. Employee contributions	38,310	30,199
c. Securities sold	311,006	548,810
d. Accrued interest and dividends	182,556	197,848
e. Currency contract receivable	1,932,616	16,391,422
f. Other	-	-
g. Rebate and fee income receivable	-	-
h. Total receivables	\$3,564,488	\$18,268,279
3. Investments, at fair value	\$86,510,468	\$74,399,039
4. Liabilities		
a. Benefits and refunds payable	-	-
b. Securities purchased	(416,206)	(1,175,239)
c. Administrative and consulting fees payable	(322,863)	(237,682)
d. Currency contract payable	(1,942,006)	(16,446,956)
e. Securities lending collateral	(3,856,190)	(4,723,021)
f. Total liabilities	(\$6,537,265)	(\$22,582,898)
5. Total market value of assets available for benefits	\$86,913,518	\$76,255,714

Table 7
Reconciliation of Plan Net Assets

Assets at Market Value		
Item	FYE 2019	FYE 2018
A. Market value of assets at beginning of year	\$76,255,714	\$81,884,149
B. Contribution income:		
1. Contributions		
a. Employee	\$431,659	\$421,771
b. Employer	-	-
c. Other	3,124,420	2,972,694
d. Total	\$3,556,079	\$3,394,465
2. Investment income		
a. Interest, dividends, and other income	\$1,341,113	\$1,375,217
b. Net appreciation	12,876,571	(3,609,403)
c. Investment expenses	(528,821)	(565,908)
d. Net investment income	\$13,688,863	(\$2,800,094)
3. Securities lending		
a. Gross income	\$130,447	\$122,207
b. Deductions	(117,904)	(104,795)
c. Net investment income	\$12,543	\$17,412
4. Benefits and refunds		
a. Refunds	(\$40,182)	(\$44,163)
b. Regular monthly benefits	(6,466,593)	(6,101,659)
c. Total	(\$6,506,775)	(\$6,145,822)
5. Administrative and miscellaneous expenses	(\$92,906)	(\$94,396)
C. Market value of assets at end of year	\$86,913,518	\$76,255,714

Table 8
Progress of Fund Through December 31, 2019

Plan Year Ending December 31	Employer Contributions*	Employee Contributions**	Administrative Expenses	Net Investment Income***	Benefit Payments	Transfers	Actuarial Value of Assets
Total	\$14,807,303	\$2,174,138	(\$440,829)	\$21,833,358	(\$28,875,976)	-	
2015	\$2,238,612	\$417,406	(\$76,882)	\$4,356,336	(\$4,867,630)	-	\$76,097,619
2016	3,198,930	459,363	(84,357)	4,047,102	(5,541,861)	-	78,176,796
2017	3,290,994	425,592	(92,288)	5,181,716	(5,813,888)	-	81,168,922
2018	2,959,943	434,522	(94,396)	3,477,678	(6,145,822)	-	81,800,847
2019	3,118,824	437,255	(92,906)	4,770,526	(6,506,775)	-	83,527,771

* Employer contributions equal to 50% of the gross fire insurance premium taxes from fire insurance policies written in Wyoming prior to July 1, 2015, 70% of the gross premium taxes between July 1, 2015 and July 1, 2019, 80% of the gross premium taxes between July 1, 2019 and July 1, 2020, and 100% of the gross premium taxes after July 1, 2020.

** Employee contributions may include member redeposits and member service purchase contributions

Table 9
Development of Actuarial Value of Assets

Item	FYE 2019	FYE 2018
1. Actuarial value of assets, beginning of year (before corridor)	\$81,800,847	\$81,168,922
2. Market value, end of year	\$86,913,518	\$76,255,714
3. Market value, beginning of year	\$76,255,714	\$81,884,149
4. Non-investment/administrative net cash flow:		
a. Employee contributions	\$431,659	\$421,771
b. Employer contributions	-	-
c. Other contributions	3,124,420	2,972,694
d. Refund of employee accounts	(40,182)	(44,163)
e. Retirement benefits	(6,466,593)	(6,101,659)
f. Administrative expenses	(92,906)	(94,396)
g. Total net cash flow: [sum of (4a) through (4f)]	(\$3,043,602)	(\$2,845,753)
5. Investments and securities lending:		
a. Interest and dividends on investments	\$1,341,113	\$1,375,217
b. Gross income from securities lending	130,447	122,207
c. Fees and expenses	(646,725)	(670,703)
d. Total net income: [sum of (5a) through (5c)]	\$824,835	\$826,721
6. Investment income:		
a. Actual market return: (2) - (3) - (4g) - (5d)	\$12,876,571	(\$3,609,403)
b. Assumed rate of return	7.00%	7.00%
c. Assumed amount of return	4,408,341	4,807,253
d. Amount subject to phase-in: (6a) - (6c)	\$8,468,230	(\$8,416,656)
7. Phase-in recognition of investment income:		
a. Current year: 0.20 * (6d)	\$1,693,646	(\$1,683,331)
b. First prior year	(1,683,331)	876,214
c. Second prior year	876,214	(91,271)
d. Third prior year	(91,271)	(1,257,908)
e. Fourth prior year	(1,257,908)	-
f. Total recognition	(\$462,650)	(\$2,156,296)
8. Actuarial value of assets, end of year		
a. Preliminary actuarial value of assets, end of year: (1) + (4g) + (5c) + (6c) + (7f)	\$83,527,771	\$81,800,847
b. Upper corridor limit: 120% * (2)	\$104,296,222	\$91,506,857
c. Lower corridor limit: 80% * (2)	\$69,530,814	\$61,004,571
d. Actuarial value of assets, end of year	\$83,527,771	\$81,800,847
9. Difference between market and actuarial value of assets	\$3,385,747	(\$5,545,133)
10. Actuarial rate of return	5.94%	4.36%
11. Market rate of return*	18.72%	-3.52%
12. Ratio of actuarial value to market value of assets	96.10%	107.27%

* Current year market rate of return is based on unaudited data and is supplied by the plan's investment consultant.

Table 10

History of Investment Returns

Plan Year (1)	Market Value (2)	Actuarial Value (3)
2015	-0.26%	6.03%
2016	7.60%	5.44%
2017	14.20%	6.72%
2018	-3.52%	4.36%
2019	18.72%	5.94%
Average returns:		
Last five years:	7.02%	5.69%

The market returns above are gross of investment expenses and were provided by the plan's investment consultant. The actuarial returns above are based on the financial information provided by the plan's auditors.

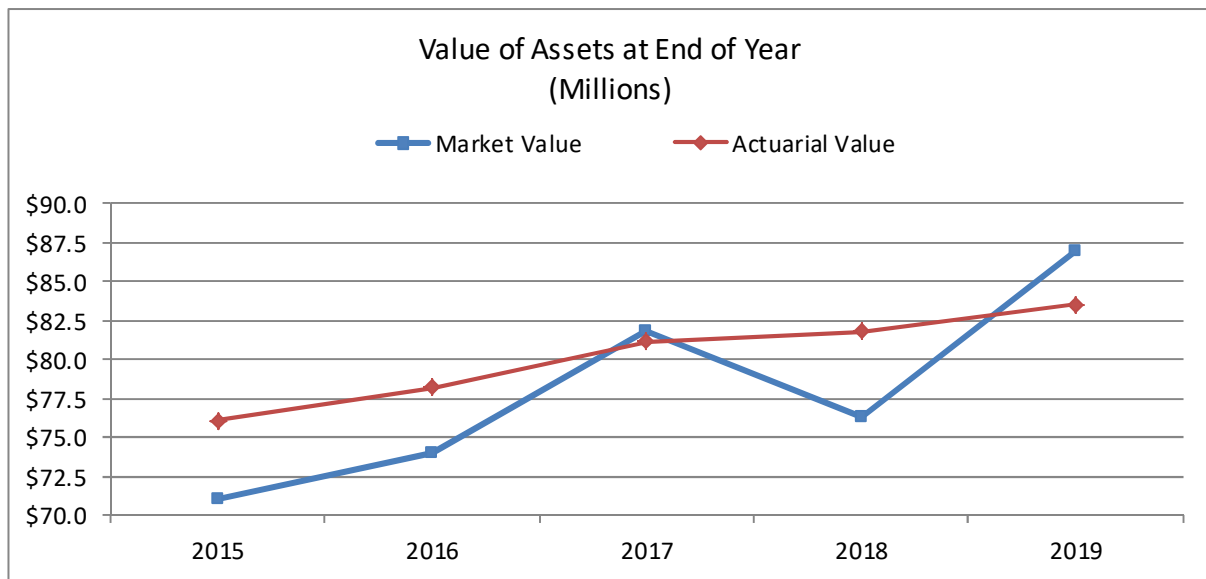


Table 11
Solvency Test

Valuation Date January 1	Total Active Member Contributions (1)	Inactive and Pensioner Liability (2)	Employer Financed Active Accrued Liability (3)	Actuarial Value of Assets	Percentage of Liabilities Covered by Assets		
					(1)	(2)	(3)
2016	\$5,369,518	\$60,709,865	\$36,199,040	\$76,097,619	100%	100%	27.7%
2017	5,467,501	61,194,577	35,582,775	78,176,796	100%	100%	32.4%
2018	5,544,708	67,352,453	36,194,784	81,168,922	100%	100%	22.9%
2019	5,542,717	71,400,879	35,343,932	81,800,847	100%	100%	13.7%
2020	5,603,713	74,093,449	35,563,263	83,527,771	100%	100%	10.8%

Table 12
Schedule of Funding Progress

(1)	(2)	(3)	(4)	(5)	(6)
Valuation Date January 1	Actuarial Value of Assets	Actuarial Accrued Liability (AAL)	Unfunded AAL (UAAL) [(3) - (2)]	Funded Ratio [(2)/(3)]	UAAL per Active Member
2016	\$76,097,619	\$102,278,423	\$26,180,804	74.40%	\$11,005
2017	78,176,796	102,244,853	24,068,057	76.46%	10,374
2018	81,168,922	109,091,945	27,923,023	74.40%	12,046
2019	81,800,847	112,287,528	30,486,681	72.85%	12,990
2020	83,527,771	115,260,425	31,732,654	72.47%	13,129

Liabilities are calculated assuming no future cost-of-living increases.

Table 13**Schedule of Contributions from the Employer(s) and Other Contributing Entities**

(1)	(2)	(3)	(4)
Fiscal Year Ending December 31	Actuarially Determined Contribution	Employer Contributions*	Percentage of Actuarially Determined Contribution Contributed [(3)/(2)]
2016	\$3,128,272	\$3,198,930	102.26%
2017	2,923,585	3,290,994	112.57%
2018	3,275,465	2,959,943	90.37%
2019	3,543,372	3,118,824	88.02%
2020	3,669,138	-	-

* 70% of the gross fire insurance premium taxes from fire insurance policies written in Wyoming before July 1, 2019, 80% of the gross fire insurance premium taxes from fire insurance policies written in Wyoming on or after July 1, 2019, and 100% of the gross fire insurance premium taxes from fire insurance policies written in Wyoming on or after July 1, 2020.

Table 14
Reconciliation of Participant Data

	Active Participants	Vested Former Participants	Retired Participants	Beneficiaries	Participants Due Refunds	Total
Number as of January 1, 2019	2,347	375	1,238	257	1,521	5,738
New participants	284	-	-	-	12	296
Vested terminations	(54)	54	-	-	-	-
Retirements	(60)	(15)	75	-	-	-
Disability	-	-	-	-	-	-
Deceased with beneficiary	(3)	-	(13)	16	-	-
Deceased without beneficiary	(2)	(2)	(12)	(7)	-	(23)
Due refunds	(116)	-	-	-	116	-
Lump sum payoffs	(2)	(7)	-	-	(35)	(44)
Rehires/return to active	23	(6)	-	-	(17)	-
Certain period expired	-	-	-	-	-	-
Reclassifications	-	-	-	-	-	-
Data corrections	-	-	-	1	-	1
Number as of January 1, 2020	2,417	399	1,288	267	1,597	5,968

Table 15
Demographic Statistics

	January 1		
	2020	2019	Change
<u>Active Participants</u>			
Number	2,417	2,347	3.0%
<i>Vested</i>	1,496	1,494	
<i>Not vested</i>	921	853	
Average age (years)	44.41	44.31	0.2%
Average service (years)	10.62	10.88	-2.4%
Average entry age (years)	33.79	33.43	1.1%
Total employee contributions with interest	\$5,603,713	\$5,542,717	1.1%
Average employee contributions with interest	\$2,318	\$2,362	-1.8%
<u>Vested Former Participants</u>			
Number	399	375	6.4%
Average age (years)	49.30	49.53	-0.5%
Total employee contributions with interest	\$809,780	\$753,247	7.5%
Average employee contributions with interest	\$2,030	\$2,009	1.0%
<u>Retirees</u>			
Number	1,288	1,238	4.0%
Average age (years)	70.77	70.45	0.5%
Total annual benefits	\$5,810,062	\$5,568,730	4.3%
Average annual benefit	\$4,511	\$4,498	0.3%
<u>Beneficiaries</u>			
Number	267	257	3.9%
Average age (years)	73.51	72.88	0.9%
Total annual benefits	\$691,712	\$662,714	4.4%
Average annual benefit	\$2,591	\$2,579	0.5%
<u>Participants Due Refunds</u>			
Number	1,597	1,521	5.0%
Total Refunds Due	\$578,358	\$546,510	5.8%

Table 16

Distribution of Male Active Members by Age and by Years of Service

Average Age = 44.4 Average Service = 11.3

Age Last Birthday		Whole Years of Service at Valuation Date							Totals
		0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
Less than 20	Count	25	-	-	-	-	-	-	25
	Total Contributions	\$4,036	-	-	-	-	-	-	\$4,036
	Avg. Contributions	\$161	-	-	-	-	-	-	\$161
20-24	Count	88	5	-	-	-	-	-	93
	Total Contributions	30,302	\$5,644	-	-	-	-	-	35,947
	Avg. Contributions	344	\$1,129	-	-	-	-	-	387
25-29	Count	104	33	1	-	-	-	-	138
	Total Contributions	42,707	42,724	\$2,025	-	-	-	-	87,456
	Avg. Contributions	411	1,295	\$2,025	-	-	-	-	634
30-34	Count	111	74	31	3	-	-	-	219
	Total Contributions	50,942	99,105	72,523	\$9,549	-	-	-	232,119
	Avg. Contributions	459	1,339	2,339	\$3,183	-	-	-	1,060
35-39	Count	128	83	61	27	1	-	-	300
	Total Contributions	51,750	114,006	148,017	93,889	\$4,451	-	-	412,113
	Avg. Contributions	404	1,374	2,427	3,477	\$4,451	-	-	1,374
40-44	Count	91	71	57	46	22	1	-	288
	Total Contributions	37,428	102,410	146,307	164,527	105,255	\$5,827	-	561,754
	Avg. Contributions	411	1,442	2,567	3,577	4,784	\$5,827	-	1,951
45-49	Count	55	53	41	40	35	22	1	247
	Total Contributions	25,241	75,100	96,407	142,636	170,049	141,016	\$8,426	658,875
	Avg. Contributions	459	1,417	2,351	3,566	4,859	6,410	\$8,426	2,668
50-54	Count	47	30	34	47	28	43	25	254
	Total Contributions	23,038	43,227	82,255	185,336	144,189	290,883	210,636	979,564
	Avg. Contributions	490	1,441	2,419	3,943	5,150	6,765	8,425	3,857
55-59	Count	42	18	25	47	46	65	81	324
	Total Contributions	18,711	26,783	61,971	183,470	233,427	434,528	695,135	1,654,026
	Avg. Contributions	445	1,488	2,479	3,904	5,075	6,685	8,582	5,105
60-64	Count	20	17	19	17	10	17	16	116
	Total Contributions	8,659	23,311	58,484	57,726	50,895	96,701	124,125	419,899
	Avg. Contributions	433	1,371	3,078	3,396	5,089	5,688	7,758	3,620
65-69	Count	13	6	4	3	-	-	-	26
	Total Contributions	5,817	7,162	9,102	9,835	-	-	-	31,916
	Avg. Contributions	447	1,194	2,275	3,278	-	-	-	1,228
70 & Over	Count	9	4	2	-	-	-	-	15
	Total Contributions	3,238	4,696	4,191	-	-	-	-	12,126
	Avg. Contributions	360	1,174	2,096	-	-	-	-	808
Totals	Count	733	394	275	230	142	148	123	2,045
	Total Contributions	\$301,867	\$544,169	\$681,283	\$846,968	\$708,267	\$968,954	\$1,038,323	\$5,089,831
	Avg. Contributions	\$412	\$1,381	\$2,477	\$3,682	\$4,988	\$6,547	\$8,442	\$2,489

Table 17

Distribution of Female Active Members by Age and by Years of Service

Average Age = 44.3 Average Service = 6.8

Age Last Birthday		Whole Years of Service at Valuation Date							Totals
		0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
Less than 20	Count	4	-	-	-	-	-	-	4
	Total Contributions	\$671	-	-	-	-	-	-	\$671
	Avg. Contributions	\$168	-	-	-	-	-	-	\$168
20-24	Count	13	1	-	-	-	-	-	14
	Total Contributions	3,165	\$949	-	-	-	-	-	4,113
	Avg. Contributions	243	\$949	-	-	-	-	-	294
25-29	Count	27	4	1	-	-	-	-	32
	Total Contributions	9,896	4,658	\$1,991	-	-	-	-	16,545
	Avg. Contributions	367	1,165	\$1,991	-	-	-	-	517
30-34	Count	30	14	1	-	-	-	-	45
	Total Contributions	9,699	17,837	2,166	-	-	-	-	29,701
	Avg. Contributions	323	1,274	2,166	-	-	-	-	660
35-39	Count	35	14	7	1	1	-	-	58
	Total Contributions	11,807	21,318	16,057	\$3,393	\$4,357	-	-	56,932
	Avg. Contributions	337	1,523	2,294	\$3,393	\$4,357	-	-	982
40-44	Count	23	15	2	2	1	-	-	43
	Total Contributions	8,838	19,372	4,226	7,444	5,001	-	-	44,881
	Avg. Contributions	384	1,291	2,113	3,722	5,001	-	-	1,044
45-49	Count	20	11	5	5	-	1	-	42
	Total Contributions	7,856	15,238	12,231	22,172	-	\$6,588	-	64,086
	Avg. Contributions	393	1,385	2,446	4,434	-	\$6,588	-	1,526
50-54	Count	21	7	8	6	1	-	1	44
	Total Contributions	8,627	9,375	18,451	21,714	4,989	-	\$9,641	72,797
	Avg. Contributions	411	1,339	2,306	3,619	4,989	-	\$9,641	1,654
55-59	Count	8	10	17	3	1	2	6	47
	Total Contributions	3,474	14,138	38,318	10,479	4,791	12,247	45,826	129,273
	Avg. Contributions	434	1,414	2,254	3,493	4,791	6,124	7,638	2,750
60-64	Count	5	10	11	2	1	2	2	33
	Total Contributions	2,971	14,048	24,041	4,028	4,936	13,023	15,418	78,464
	Avg. Contributions	594	1,405	2,186	2,014	4,936	6,511	7,709	2,378
65-69	Count	1	3	1	-	-	1	-	6
	Total Contributions	419	4,179	2,199	-	-	6,423	-	13,220
	Avg. Contributions	419	1,393	2,199	-	-	6,423	-	2,203
70 & Over	Count	2	2	-	-	-	-	-	4
	Total Contributions	380	2,817	-	-	-	-	-	3,198
	Avg. Contributions	190	1,409	-	-	-	-	-	799
Totals	Count	189	91	53	19	5	6	9	372
	Total Contributions	\$67,803	\$123,928	\$119,681	\$69,230	\$24,074	\$38,281	\$70,885	\$513,882
	Avg. Contributions	\$359	\$1,362	\$2,258	\$3,644	\$4,815	\$6,380	\$7,876	\$1,381

Table 18

Distribution of Total Active Members by Age and by Years of Service

Average Age = 44.4 Average Service = 10.6

Age Last Birthday		Whole Years of Service at Valuation Date							Totals
		0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
Less than 20	Count	29	-	-	-	-	-	-	29
	Total Contributions	\$4,707	-	-	-	-	-	-	\$4,707
	Avg. Contributions	\$162	-	-	-	-	-	-	\$162
20-24	Count	101	6	-	-	-	-	-	107
	Total Contributions	33,467	\$6,593	-	-	-	-	-	40,060
	Avg. Contributions	331	\$1,099	-	-	-	-	-	374
25-29	Count	131	37	2	-	-	-	-	170
	Total Contributions	52,602	47,382	\$4,016	-	-	-	-	104,001
	Avg. Contributions	402	1,281	\$2,008	-	-	-	-	612
30-34	Count	141	88	32	3	-	-	-	264
	Total Contributions	60,641	116,942	74,689	\$9,549	-	-	-	261,821
	Avg. Contributions	430	1,329	2,334	\$3,183	-	-	-	992
35-39	Count	163	97	68	28	2	-	-	358
	Total Contributions	63,557	135,324	164,074	97,282	\$8,808	-	-	469,045
	Avg. Contributions	390	1,395	2,413	3,474	\$4,404	-	-	1,310
40-44	Count	114	86	59	48	23	1	-	331
	Total Contributions	46,266	121,782	150,533	171,972	110,256	\$5,827	-	606,635
	Avg. Contributions	406	1,416	2,551	3,583	4,794	\$5,827	-	1,833
45-49	Count	75	64	46	45	35	23	1	289
	Total Contributions	33,097	90,338	108,638	164,808	170,049	147,604	\$8,426	722,961
	Avg. Contributions	441	1,412	2,362	3,662	4,859	6,418	\$8,426	2,502
50-54	Count	68	37	42	53	29	43	26	298
	Total Contributions	31,665	52,602	100,706	207,050	149,178	290,883	220,278	1,052,362
	Avg. Contributions	466	1,422	2,398	3,907	5,144	6,765	8,472	3,531
55-59	Count	50	28	42	50	47	67	87	371
	Total Contributions	22,185	40,921	100,290	193,949	238,218	446,775	740,961	1,783,298
	Avg. Contributions	444	1,461	2,388	3,879	5,068	6,668	8,517	4,807
60-64	Count	25	27	30	19	11	19	18	149
	Total Contributions	11,630	37,358	82,525	61,753	55,831	109,724	139,543	498,363
	Avg. Contributions	465	1,384	2,751	3,250	5,076	5,775	7,752	3,345
65-69	Count	14	9	5	3	-	1	-	32
	Total Contributions	6,236	11,341	11,301	9,835	-	6,423	-	45,136
	Avg. Contributions	445	1,260	2,260	3,278	-	6,423	-	1,411
70 & Over	Count	11	6	2	-	-	-	-	19
	Total Contributions	3,618	7,514	4,191	-	-	-	-	15,323
	Avg. Contributions	329	1,252	2,096	-	-	-	-	806
Totals	Count	922	485	328	249	147	154	132	2,417
	Total Contributions	\$369,671	\$668,097	\$800,964	\$916,198	\$732,341	\$1,007,235	\$1,109,208	\$5,603,713
	Avg. Contributions	\$401	\$1,378	\$2,442	\$3,680	\$4,982	\$6,540	\$8,403	\$2,318



Table 19

Schedule of Pensions Recipients Added to and Removed from Rolls

Fiscal Year Ending December 31	Added to Rolls*		Removed from Rolls		Total		Percent Increase in	Average
	Annual		Annual		Annual		Annual	Annual
	Pension		Pension		Pension		Pension	Pension
	Count	Benefits	Count	Benefits	Count	Benefits	Benefits	Benefit
2014	106	\$368,168	35	\$114,448	1,251	\$4,250,343		\$3,398
2015	81	1,113,515	25	74,858	1,307	5,289,000	24.44%	4,047
2016	108	461,121	40	130,252	1,375	5,619,869	6.26%	4,087
2017	99	414,899	41	139,273	1,433	5,895,495	4.90%	4,114
2018	101	459,658	39	123,709	1,495	6,231,444	5.70%	4,168
2019	92	379,616	32	109,286	1,555	6,501,774	4.34%	4,181

* Added to amounts in 2015 include increased benefit amounts under the provisions of the new plan.

Table 20
Retirees by Monthly Benefit and Age

Males	Age Last Birthday						
Benefit Amount	Under 60	60-64	65-69	70-74	75-79	80 & over	Total
Under \$50	-	-	-	-	-	-	-
\$50 - 99	-	2	2	3	2	-	9
\$100 - 149	-	5	9	12	9	5	40
\$150 - 199	-	6	13	30	10	28	87
\$200 - 249	-	11	33	23	25	40	132
\$250 - 299	-	16	22	23	20	17	98
\$300 - 349	-	15	27	27	26	8	103
\$350 - 399	-	17	40	46	12	10	125
\$400 & Over	-	188	212	96	46	27	569
Total	-	260	358	260	150	135	1,163
Females							
Benefit Amount	Under 60	60-64	65-69	70-74	75-79	80 & over	Total
Under \$50	-	-	-	-	-	-	-
\$50 - 99	-	-	2	2	5	-	9
\$100 - 149	-	2	5	2	6	2	17
\$150 - 199	-	6	6	3	1	3	19
\$200 - 249	-	1	6	5	4	5	21
\$250 - 299	-	1	4	2	-	-	7
\$300 - 349	-	3	3	3	4	-	13
\$350 - 399	-	4	3	4	3	-	14
\$400 & Over	-	9	11	5	-	-	25
Total	-	26	40	26	23	10	125
Males & Females							
Benefit Amount	Under 60	60-64	65-69	70-74	75-79	80 & over	Total
Under \$50	-	-	-	-	-	-	-
\$50 - 99	-	2	4	5	7	-	18
\$100 - 149	-	7	14	14	15	7	57
\$150 - 199	-	12	19	33	11	31	106
\$200 - 249	-	12	39	28	29	45	153
\$250 - 299	-	17	26	25	20	17	105
\$300 - 349	-	18	30	30	30	8	116
\$350 - 399	-	21	43	50	15	10	139
\$400 & Over	-	197	223	101	46	27	594
Total	-	286	398	286	173	145	1,288

Table 21
Beneficiaries by Monthly Benefit and Age

Males	Age Last Birthday								
Benefit Amount	Under 50	50-54	55-59	60-64	65-69	70-74	75-79	80 & over	Total
Under \$50	-	-	-	-	-	-	-	-	-
\$50 - 99	-	-	-	-	1	-	-	-	1
\$100 - 149	-	-	-	-	1	-	2	1	4
\$150 - 199	-	-	-	-	-	1	-	1	2
\$200 - 249	-	-	1	1	1	-	1	-	4
\$250 - 299	-	-	-	-	1	-	-	-	1
\$300 - 349	-	-	-	-	-	-	-	-	-
\$350 - 399	-	-	-	-	-	-	-	-	-
\$400 & Over	-	-	-	-	-	-	-	-	-
Total	-	-	1	1	4	1	3	2	12
Females									
Benefit Amount	Under 50	50-54	55-59	60-64	65-69	70-74	75-79	80 & over	Total
Under \$50	-	-	-	1	-	-	-	1	2
\$50 - 99	-	-	1	-	-	-	-	3	4
\$100 - 149	-	-	2	1	5	4	5	37	54
\$150 - 199	-	-	6	1	2	12	13	25	59
\$200 - 249	-	-	7	6	5	10	9	14	51
\$250 - 299	-	-	2	6	11	3	9	9	40
\$300 - 349	-	-	3	6	6	2	2	3	22
\$350 - 399	-	-	5	3	5	-	4	-	17
\$400 & Over	-	-	-	3	-	2	1	-	6
Total	-	-	26	27	34	33	43	92	255
Males & Females									
Benefit Amount	Under 50	50-54	55-59	60-64	65-69	70-74	75-79	80 & over	Total
Under \$50	-	-	-	1	-	-	-	1	2
\$50 - 99	-	-	1	-	1	-	-	3	5
\$100 - 149	-	-	2	1	6	4	7	38	58
\$150 - 199	-	-	6	1	2	13	13	26	61
\$200 - 249	-	-	8	7	6	10	10	14	55
\$250 - 299	-	-	2	6	12	3	9	9	41
\$300 - 349	-	-	3	6	6	2	2	3	22
\$350 - 399	-	-	5	3	5	-	4	-	17
\$400 & Over	-	-	-	3	-	2	1	-	6
Total	-	-	27	28	38	34	46	94	267

Table 22
Pensions Awarded in 2019 by Status

Average Age = 62.1

Males & Females	Status		
Benefit Amount	Retirees	Beneficiaries	Total
Under \$50	0	1	1
\$50-\$99	3	0	3
\$100-\$149	3	1	4
\$150-\$199	11	5	16
\$200-\$249	5	4	9
\$250-\$299	11	4	15
\$300-\$349	5	1	6
\$350-\$399	6	1	7
\$400 & over	31	0	31
Total	75	17	92
Males & Females			
Age Last Birthday	Retirees	Beneficiaries	Total
Under 50	0	2	2
50-54	0	1	1
55-59	0	0	0
60-64	58	3	61
65-69	14	2	16
70-74	2	0	2
75-79	1	3	4
80-84	0	3	3
85 & over	0	3	3
Total	75	17	92

Table 23**Retirees by Service at Retirement and Years Since Retirement**

Average Service at Retirement = 19.5 Average Years Since Retirement = 9.9

Service at Retirement		Years Elapsed Since Retirement							Totals
		0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
Less than 5	Count	1	1	-	3	-	-	2	7
	Avg. Benefit	\$56	\$119	-	\$264	-	-	\$395	\$251
5-9	Count	34	43	12	7	13	4	2	115
	Avg. Benefit	\$128	\$126	\$148	\$158	\$178	\$172	\$109	\$138
10-14	Count	47	54	36	46	31	7	2	223
	Avg. Benefit	\$200	\$212	\$223	\$216	\$229	\$213	\$243	\$215
15-19	Count	38	47	54	48	13	5	3	208
	Avg. Benefit	\$300	\$305	\$305	\$306	\$288	\$320	\$274	\$303
20-24	Count	43	108	80	28	6	7	-	272
	Avg. Benefit	\$405	\$400	\$394	\$396	\$405	\$374	-	\$398
25-29	Count	82	92	42	16	20	3	-	255
	Avg. Benefit	\$500	\$492	\$481	\$474	\$453	\$459	-	\$488
30-34	Count	57	60	24	16	3	-	-	160
	Avg. Benefit	\$580	\$573	\$559	\$541	\$480	-	-	\$568
35 & Over	Count	35	8	4	1	-	-	-	48
	Avg. Benefit	\$670	\$648	\$633	\$720	-	-	-	\$664
Totals	Count	337	413	252	165	86	26	9	1,288
	Avg. Benefit	\$416	\$386	\$373	\$331	\$303	\$299	\$257	\$376

Table 24

Retirees by Year of Retirement

January 1, 2020 Total = 1,288

Year of Retirement	Count	Year of Retirement	Count
Under 1981	-	2000	26
1981	-	2001	24
1982	-	2002	40
1983	1	2003	37
1984	-	2004	36
1985	1	2005	37
1986	2	2006	49
1987	-	2007	66
1988	1	2008	49
1989	-	2009	51
1990	2	2010	63
1991	5	2011	71
1992	5	2012	98
1993	5	2013	89
1994	8	2014	87
1995	13	2015	61
1996	16	2016	75
1997	18	2017	68
1998	25	2018	81
1999	11	2019*	67

**May include retirements as of January 1, 2020*

Table 25
Thirty Year Projected Benefit Payments

Year Ending December 31	Actives	Retirees*	Total
2020	\$ 368,061	\$ 6,621,826	\$ 6,989,886
2021	756,145	6,589,002	7,345,147
2022	1,101,493	6,527,221	7,628,713
2023	1,461,189	6,461,717	7,922,905
2024	1,813,632	6,391,226	8,204,858
2025	2,174,449	6,316,454	8,490,903
2026	2,494,502	6,232,627	8,727,129
2027	2,754,834	6,143,161	8,897,995
2028	3,004,111	6,041,244	9,045,355
2029	3,265,822	5,930,725	9,196,547
2030	3,511,986	5,812,856	9,324,842
2031	3,750,397	5,686,342	9,436,739
2032	3,990,301	5,546,418	9,536,719
2033	4,213,151	5,398,411	9,611,562
2034	4,424,458	5,247,741	9,672,199
2035	4,611,562	5,083,901	9,695,462
2036	4,798,569	4,908,547	9,707,115
2037	5,022,051	4,736,190	9,758,240
2038	5,244,098	4,552,972	9,797,071
2039	5,432,465	4,365,348	9,797,813
2040	5,608,244	4,168,978	9,777,221
2041	5,778,454	3,975,711	9,754,166
2042	5,970,436	3,770,799	9,741,235
2043	6,156,412	3,559,476	9,715,888
2044	6,296,788	3,344,679	9,641,467
2045	6,408,130	3,125,326	9,533,456
2046	6,511,014	2,904,661	9,415,675
2047	6,569,993	2,686,822	9,256,814
2048	6,600,003	2,474,593	9,074,596
2049	6,624,786	2,267,945	8,892,731

* Includes Disabled Members, Beneficiaries, and Deferred Vested Members.

APPENDIX A

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Summary of Actuarial Assumptions and Methods

The following methods and assumptions were used in preparing the January 1, 2020 actuarial valuation report.

1. Valuation Date

The valuation date for any given year is January 1st, the first day of each plan year. This is the date as of which the actuarial present value of future benefits and the actuarial value of assets are determined.

2. Actuarial Cost Method

The actuarial valuation uses the Entry Age Normal (EAN) actuarial cost method, amortized as a level dollar amount. Under this method, the employer contribution amount is the sum of (i) the employer normal cost amount, and (ii) the amount that will amortize the unfunded actuarial accrued liability (UAAL).

- a. The valuation is prepared on the projected benefit basis, under which the present value, at the investment return rate assumed to be earned in the future (currently 7.00%), of each participant's expected benefit payable at retirement or death is determined, based on his/her age, service, and sex. The calculations take into account the probability of a participant's death or termination of employment prior to becoming eligible for a benefit, as well as the possibility of his/her terminating with a service, or survivor's benefit. The present value of the expected benefits payable for the active participants is added to the present value of the expected future payments to retired participants and beneficiaries to obtain the present value of all expected benefits payable from the Fund on account of the present group of participants and beneficiaries.
- b. The employer contributions required to support the benefits of the Fund are determined using a level funding approach, and consist of a normal cost contribution and a unfunded accrued liability contribution.
- c. The normal cost contribution is determined using the "entry age normal" actuarial cost method. Under this method, a calculation is made to determine the average uniform and constant employer contribution amount which, if applied to each new participant during the entire period of his/her anticipated covered service, would be required to meet the cost of all benefits payable on his/her behalf based on the benefits provisions applicable for the individual member.
- d. The Board's policy consists of amortizing the unfunded liability as of January 1, 2018, over a closed 30 year period with each subsequent amortization base created as a result of year to year experience changes over individual 20 year closed periods. The current year amortization base is determined by taking the current unfunded liability less the outstanding amounts of prior year bases.



Summary of Actuarial Assumptions and Methods (continued)

3. Actuarial Value of Assets

The actuarial value of assets is based on the market value of assets with a five-year phase-in of actual investment return in excess of (less than) expected investment income, with interest, dividends, and other income recognized immediately. Expected investment income is determined using the assumed investment return rate and the market value of assets (adjusted for receipts and disbursements during the year). The returns are computed net of investment expenses. An adjustment is made if the actuarial value is not within 20% of the Market Value. For any year following a year in which the 20% of market value adjustment was applied, the actuarial value is determined as if the adjustment was not applied in the previous year.

4. Economic Assumptions

Investment return: 7.00% per year, compounded annually, composed of an assumed 2.25% inflation rate and a 4.75% net real rate of return. This rate represents the assumed return, net of investment expenses.

5. Demographic Assumptions

a. Rates Before Retirement

Healthy Pre-Retirement Mortality:

RP-2014 Employee Mortality Table, fully generational, projected with Scale MP-2017

Males: No set back with a multiplier of 100%

Females: No set back with a multiplier of 100%

Healthy Post-Retirement Mortality:

RP-2014 Healthy Annuitant Mortality Table, fully generational, projected with Scale MP-2017

Males: No set back with a multiplier of 100%

Females: No set back with a multiplier of 88%

Age	Pre-Retirement		Post-Retirement	
	Projected to 2020 using Scale MP-2017			
	Male	Female	Male	Female
20	0.04%	0.02%	0.04%	0.01%
25	0.05%	0.02%	0.06%	0.03%
30	0.05%	0.02%	0.09%	0.06%
35	0.06%	0.03%	0.13%	0.10%
40	0.07%	0.04%	0.19%	0.14%
45	0.09%	0.06%	0.27%	0.18%
50	0.16%	0.11%	0.38%	0.23%
55	0.27%	0.17%	0.55%	0.32%
60	0.47%	0.25%	0.78%	0.47%
65	0.83%	0.36%	1.10%	0.70%
70	1.34%	0.60%	1.62%	1.07%
75			2.54%	1.74%
80			4.23%	2.93%
85			7.37%	5.14%
90			13.01%	9.14%
95			20.87%	15.23%
100			30.32%	23.24%

Summary of Actuarial Assumptions and Methods (continued)

b. Withdrawal Rates

Age	Withdrawal	
	Ultimate	
	Male	Female
20	20.00%	20.00%
25	11.00%	11.00%
30	8.00%	8.00%
35	5.00%	5.00%
40	5.00%	5.00%
45	3.00%	3.00%
50	2.00%	2.00%
55	2.00%	2.00%
60	2.00%	2.00%

Service	Withdrawal	
	First five years	
	Male	Female
1	16.0%	16.0%
2	15.5%	15.5%
3	15.0%	15.0%
4	13.0%	13.0%
5	10.0%	10.0%

c. Retirement Rates

Age	Rates
<60	0.0%
60	70.0%
61	15.0%
62	15.0%
63	20.0%
64	25.0%
65	25.0%
66	30.0%
67	40.0%
68	40.0%
69	75.0%
70	100.0%

Summary of Actuarial Assumptions and Methods (continued)

6. Other Assumptions

- a. Percent married: 85% of employees are assumed to be married. (No beneficiaries other than the spouse assumed.)
- b. Age difference: Male members are assumed to be three years older than their spouses, and female members are assumed to be three years younger than their spouses.
- c. Percent electing annuity on death (when eligible): All of the spouses of vested, married participants are assumed to elect an annuity.
- d. Administrative expenses: Average of actual expenses for the prior two years, with each year projected at 2.50% to the valuation date.
- e. Decrement timing: Decrements of all types are assumed to occur mid-year.
- f. Eligibility testing: Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
- g. Incidence of contributions: Contributions are assumed to be received continuously throughout the year.
- h. Benefit service: All members are assumed to accrue one year of service each year.
- i. Premium tax allocation: Provided by staff and based on booked total premium taxes.
- j. Percent of eligible deferred vested members electing a refund: 25% of all future deferred vested members are assumed to leave their contributions in the fund and elect a deferred vested annuity payable commencing at age 60.
- k. No benefit amount data is available for members entitled to deferred benefits. The benefit is estimated using the final average compensation and service provided by WRS.

APPENDIX B

SUMMARY OF PLAN PROVISIONS

Summary of Plan Provisions

Covered Members

Any volunteer firefighter, EMT, or search and rescue employee for whom payments are received by the Volunteer Firefighter, EMT, and Search and Rescue pension account as prescribed in W.S. 35-9-621(e).

Service Retirement

Eligibility

Age 60 with 5 years of service.

Monthly Benefit

\$16 per month for each of the first 10 years of service and \$19 per month for each year of service over 10.

Normal Form of Payment is a 66% Joint & Survivor Annuity for married retirees and life annuity for unmarried retirees.

Any contributing member of the discontinued Volunteer Firefighter Pension Plan and the Volunteer Emergency Medical Technician Pension Plan on June 30, 2015 is grandfathered in certain provisions of the discontinued plans, including receiving the greater of the benefit under the previous plan and the service retirement benefit under this plan.

Vesting

Any member with five or more years of service who has left employment, and who has not withdrawn accumulated contributions, is eligible to receive the above benefit or can elect to receive a lump-sum refund of contributions with interest. In addition, a member with at least ten years of service may gain extra years of service by continuing to contribute, up to a maximum number of months served as an active member. A member who terminates with less than five years of service is only eligible for the lump-sum benefit.

Pre-retirement Death Benefit

Eligibility

No age or service requirements.

Monthly Benefit

Upon the death of any participating member, the board shall authorize a monthly payment to the surviving spouse of the member during the spouse's remaining lifetime of an amount equal to 66% of the amount calculated above based on actual years of service, or five years of service if greater. Benefits are also payable to children under age 21, equal to 33% of the amount calculated above, upon death of the member and spouse.



Summary of Plan Provisions (continued)

Post-retirement Death Benefit

Monthly Benefit	66% of the member's benefit payable prior to the member's death. Benefits are also payable to children under age 21, equal to 33% of the amount calculated above, upon death of the member and spouse.
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Lump Sum Death Benefit

Benefit	A lump sum payment of \$5,000, or \$2,500 for members who contributed \$5.00 per month before July 1, 1989, less the amount of the monthly benefits paid to the estate upon the spouse's death. For a deceased member without an eligible survivor, the greater of the deceased member's account or \$5,000 (\$2,500 for certain members) is payable to the estate of the deceased member.
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Contributions

Employee	\$15.00 (\$18.75 effective July 1, 2020) per month for volunteer firefighters and EMT \$30.00 (\$37.50 effective July 1, 2020) per month for search and rescue members
State	Up to 80% (100% effective July 1, 2020) of gross fire insurance premium taxes paid on fire insurance policies in Wyoming. Once the funded ratio rises to 107%, contributions may drop to a level no less than 60% of the gross fire insurance premium taxes paid on fire insurance policies in Wyoming.
Interest	3.0% annually.

Cost-of-Living Improvements

W.S. 9-3-454 prohibits benefit changes, including cost-of-living increases, unless the funded ratio stays above 100% plus a margin for adverse experience throughout the life of the benefit change.



APPENDIX C

RISKS ASSOCIATED WITH MEASURING THE ACCRUED LIABILITY

Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution

The determination of the accrued liability and the actuarially determined contribution requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions due to changing conditions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period, or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the plan's future financial condition include:

1. Investment risk – actual investment returns may differ from the expected returns;
2. Asset/Liability mismatch – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;
3. Contribution risk – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the plan's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base;
4. Longevity risk – members may live longer or shorter than expected and receive pensions for a period of time other than assumed;
5. Other demographic risks – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

The computed contribution rate shown on Table 1b may be considered as a minimum contribution rate that complies with the Board's funding policy. The timely receipt of the actuarially determined contributions is critical to support the financial health of the plan. Users of this report should be aware that contributions made at the actuarially determined rate do not necessarily guarantee benefit security.



Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution (continued)

Plan Maturity Measures

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures include the following:

	<u>January 1, 2020</u>	<u>January 1, 2019</u>
Ratio of actives to retirees and beneficiaries	0.8	0.8
Ratio of net cash flows to market value of assets	-4%	-4%
Duration of the actuarial accrued liability	12.3	12.4

Ratio of Actives to Retirees and Beneficiaries

A young plan with many active members and few retirees will have a high ratio of active to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution (continued)

Ratio of Net Cash Flow to Market Value of Assets

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

Duration of Actuarial Accrued Liability

The duration of the actuarial accrued liability may be used to approximate the sensitivity to a 1% change in the assumed rate of return. For example, duration of 10 indicates that the liability would increase approximately 10% if the assumed rate of return were lowered 1%.

Additional Risk Assessment

Additional risk assessment is outside the scope of the annual actuarial valuation. Additional assessment may include scenario tests, sensitivity tests, stochastic modeling, stress tests, and a comparison of the present value of accrued benefits at low-risk discount rates with the actuarial accrued liability